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KEIL & WEINKAUF
1350 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

EXAMINER

EPPERSON, JON D

ART UNIT

PAPER NUMBER

1627

DATE MAILED: 06/19/2002

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary*File Copy*

Application No.

09/647,069

Applicant(s)

BOYMOND ET AL.

Examiner

Jon D Epperson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The Response filed September 20, 2000 (Paper No. 9) is acknowledged for an election of species. No claims were cancelled, amended or added. Therefore, claims 1-8 are pending.

Election/Restriction

2. Applicant's election with traverse of Group I (claims 1-5) in Paper No. 6 is acknowledged.
3. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
4. Claims 6-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 9.
5. Applicant's species election *without traverse* in Paper No. 9 is acknowledged.
6. Regarding the election of species, the following is noted. MPEP § 803.02 (cited in part):

On the other hand, should no prior art be found that anticipates or renders obvious the elected species, the search of the Markush-type claim will be extended. If prior art is then found that anticipates or renders obvious the Markush-type claim with respect to a nonelected species, the Markush-type claim shall be rejected and claims to the nonelected species held withdrawn from further consideration. The prior art search, however, will not be extended unnecessarily to cover all nonelected species. Should applicant, in

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response to this rejection of the Markush-type claim, overcome the rejection, as by amending the Markush-type claim to exclude the species anticipated or rendered obvious by the prior art, the amended Markush-type claim will be reexamined. The prior art search will be extended to the extent necessary to determine patentability of the Markush-type claim. In the event prior art is found during the reexamination that anticipates or renders obvious the amended Markush-type claim, the claim will be rejected and the action made final. Amendments submitted after the final rejection further restricting the scope of the claim may be denied entry.

7. Claims 1-5 are examined on the merits.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- A. The terms Z, X, X^a, A-F, R¹-R⁴ and R⁶ in claim 1 are indefinite:

Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being "selected from the group consisting of A, B and C." See Ex parte Markush, 1925 C.D. 126 (Comm'r Pat. 1925). Alternative expressions using "or" are acceptable, such as "wherein R is A, B, C, or D" (see also MPEP 2173.05(h)).

Here, applicant does not conform in claim 1 to the acceptable format for Markush groups.

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B. The phrase "it being possible" in claim 1 is indefinite. The term "it being possible" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, the metes and bounds of the invention as claimed cannot be determined.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

11. Claims 1-5 are rejected under 35 U.S.C. 102(a) as being anticipated by Boymond et al (Angew. Chem. Int. Ed. 1998, 37(12), 1701-1703).

Boymond et al discloses a process for the preparation of Grignard compounds reading on the claimed method of preparing compounds of general formulas I, II and III. For example, applicant's elected compound i.e. "compound no. 1 of Table 1 (page 15, lines 5-10) as a compound of general formula II which reacts with diisopropylmagnesium (page 14, example A) as a compound of general formula III to produce the Grignard compound [of general formula I]" was disclosed by Boymond et al (see Boymond et al, Table 1, Entry 11). Furthermore, the reaction disclosed by Boymond was carried out in THF (see scheme 1), which reads on claim 2 that requires an inert aprotic solvent. Furthermore, the reaction disclosed by Boymond was carried out at -40°C (see Boymond

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et al, Table 1, Entry 11, T[°C]), which reads on claim 3 that requires that the temperatures be below -15°C. Furthermore, the reaction disclosed by Boymond was carried out in 0.5-1 hour (see Boymond et al, scheme 1), which reads on claim 4 that requires the reaction to be completed within 10 hours. Finally, the process of preparing Grignard compounds as stated in claim 1 was also carried out on solid support, which reads on claim 5 including the applicant's elected Wang resin (see Boymond et al, page 702, last paragraph on left column).

Note: No foreign priority date was established under 35 USC 119 (a-d) since applicant failed to provide English translations for the foreign applications i.e., GERMANY 198 15 078.4, 198 16 414.9, and 198 36 408.3. As a result, the examiner was not able to determine the validity of the foreign priority documentation.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohno et al (US 5,420,310).

Ohno et al discloses a process for the preparation of Grignard compounds reading on the claimed method of preparing compounds of general formula I using an aromatic halide of general formula II and a Grignard reagent of general formula III (compare claim 1 to Ohno et al, column 8, reaction A-2 and column 10, second paragraph). Ohno et al

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discloses as the Grignard reagent i.e., applicant's compound III (see claim 1), "ethyl magnesium bromide, n-propyl magnesium bromide, isopropyl magnesium bromide, [etc.]", which reads on *claim 1* (see Ohno et al column 10, second paragraph, which reads on the claimed compound III where R^4 = alkyl and X = halogen). Ohno et al discloses as the aromatic halide i.e., applicant's compound II (see claim 1), compound 2, which reads on *claim 1* with R^1 = halogen; X^a = Br; {B, D, and E} = CH or attachment point for Mg-X; and {A and F} = CR^2 whereby A and F form a five membered ring with "O" as the heteroatom (see claim 1 stating, "it being possible for two adjacent variables A, B, D, E or F together to form another substituted or unsubstituted aromatic saturated or partially saturated ring which has 5 to 8 atoms in the ring and which may contain one or more heteroatoms such as O, ..."). Finally, the dioldibromide, compound 2, "reacted with a Grignard reagent [e.g., isopropyl magnesium bromide] to exchange the bromine *only* on the 5th position of Compound 2 for magnesium halide" leaving the other bromine intact, which reads on *claim 1* (see applicant's general formula I) with R^1 = halogen; X = Br; {B, D, and E} = CH or attachment point for Mg-X; and {A and F} = CR^2 whereby A and F form a five membered ring with "O" as the heteroatom (see above).

Ohno et al also discloses preparing said Grignard reagents in an aprotic solvent such as "ether, tetrahydrofuran (THF), 1,2-dimethoxyethane (DME) and dioxane", which reads on *claim 2* (compare claim 2 to Ohno et al, column 10, lines 60-61).

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Ohno et al also discloses preparing said Grignard reagents at temperatures below -15°C such as at “temperatures ranging from -40° to 30°C, preferably -20° to 0°C”, which reads on *claim 3* (compare claim 3 to Ohno et al, column 10, lines 63-64).

Ohno et al also discloses preparing said Grignard reagents within 10 hours, which reads on *claim 4* (compare claim 4 to Ohno et al, see example 11 column 29, lines 1-4 and 41-47).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

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16. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohno et al (US 5420310) in view of Minoura et al (J. Polym. Sci., Part A-1, 1969, 7(11), 3245-55) and Capporiccio et al (US 4,254,030).

Ohno teaches the same magnesium-halogen exchange reaction disclosed by the applicant, which reads on claims 1-⁴ (see *Claim Rejections - 35 USC § 102* above).

However, Ohno lacks the teaching of carrying out the magnesium-halogen exchange reaction on a solid support.

However, Minoura *et al* (J. Polym. Sci., Part A-1, 1969, 7(11), 3245-55) teaches the synthetic usefulness of performing a magnesium-halogen exchange reaction on a solid support using poly(vinyl chloride) as the solid support and benzylmagnesium chloride as the compound of general formula III (see Minoura et al, page 3249, reaction 5). Caproiccio et al also teaches the synthetic usefulness of performing a magnesium-halogen exchange reaction on a solid support using copolymers of fluorosulphonyl olefins (see Caproiccio et al, column 3, reaction V).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art to carry out the magnesium-halogen exchange reaction described by Ohno et al on a solid support, as taught by Minoura *et al*. One would have been motivated to use a magnesium-halogen exchange reaction on a solid support to obtain higher yields that are "free of by-products, avoiding any interaction between ... [functionalities that are labile to Grignard reagents] and Grignard compounds, [and] ... also avoiding secondary reactions between the different species present during the course of the reaction" (see Caproiccio et al, column 8, lines 22-29). One would have had a high expectation of

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success since both Minoura et al and Caproiccio et al teach that magnesium-halogen exchange reactions can occur for reactions involving alkyl halides on a solid support.

Status of Claims/Conclusion

17. No claims are allowed.
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon D Epperson whose telephone number is (703) 308-2423. The examiner can normally be reached Monday-Friday from 8:30 a.m. to 4:30 p.m..
19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jyothsna Venkat can be reached on (703) 308-2439. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.
20. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2439.

Jon D. Epperson, Ph.D.
June 14, 2002

DR. JYOTHSNA VENKAT PH.D.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600
J. Venkat
DR. JYOTHSNA VENKAT PH.D.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600